

35.2-65 Outdoor Lighting

[new section]

35.2-65.1 Purpose

These outdoor lighting provisions establish standards for outdoor lighting to:

- (a) Protect against direct glare and excessive lighting;
- (b) Provide safe roadways for motorists, cyclists and pedestrians;
- (c) Protect and reclaim the ability to view the night sky, and help preserve the quality of life and the tourist experience;
- (d) Promote efficient and cost effective lighting;
- (e) Ensure that sufficient lighting can be provided where needed to promote safety and security; and
- (f) Allow for flexibility in the style of lighting fixtures.

35.2-65.2 Applicability

- (a) All applications for final site plan review or conditional use permits shall include lighting plans showing location, type, height and lumen output of all proposed and existing fixtures. The applicant shall provide information to verify that lighting conforms to the provisions of this lighting code.

(b) All permanent exterior lighting installed on private property after the effective date of these provisions shall comply with the requirements established herein unless required by a public agency for public safety purposes. The standards established in this section do not apply to public street lights.

~~(b)~~(c) Lighting that is established pursuant to submittal of a master lighting plan may exceed the heights established in section 35.2-65.3(a) as long as a qualified lighting professional certifies that spillover lighting at the outer property lines of the area subject to the master lighting plan does not exceed the maximum lighting thresholds established in section 35.2-65.3.

35.2-65.3 General Standards

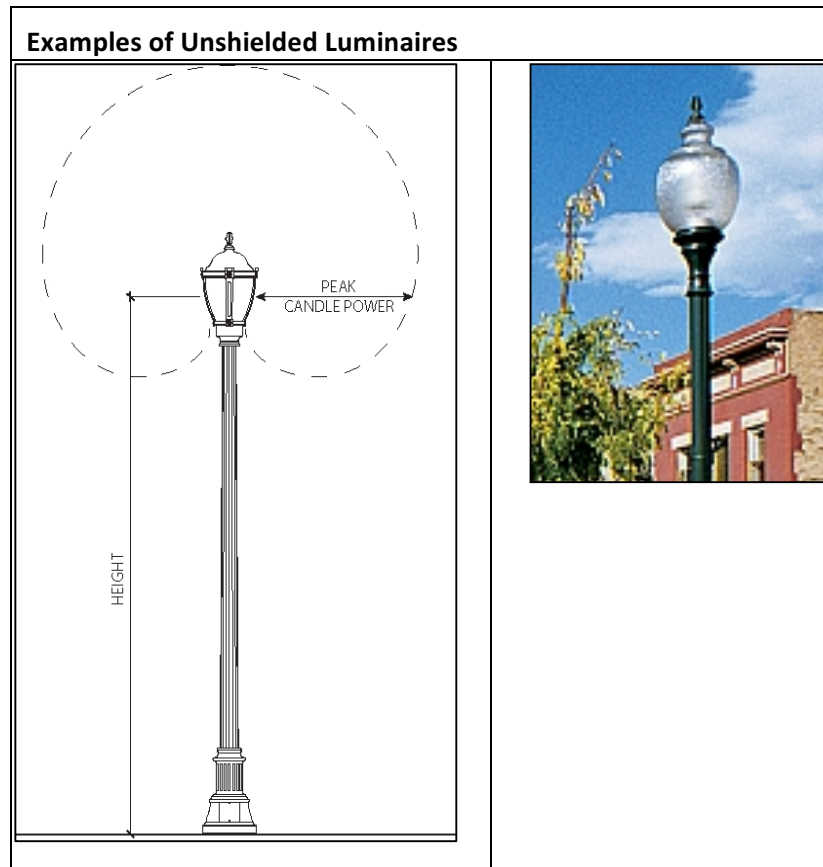
All exterior lighting shall be full cut-off fixtures with the light source fully shielded, with the exception of unshielded luminaires and shall not cause spillover lighting at ~~the~~any residential property line exceeding ~~0.501 lumens per square foot~~ footcandles and the minimum values in public areas of common areas of multi-family, mixed use and commercial sites shall comply with the standards in IES Publication RP-20. All other luminaires shall be installed so that the shield cuts off direct lighting from fixtures at any residential property line.

- (a) **Unshielded Luminaires.** When a light source or luminaire has no cutoff the standards in Exhibit VI-14: Standards for Unshielded Luminaires shall be met. Note that one (1) lumen per square foot equals one (1) foot candle.

Exhibit VI-14: Standards for Unshielded Luminaires

Standard	Maximum Permitted Average Maintained Illumination at Ground Level	Maximum Permitted Height of Light Source*	Uniformity (ratio of maximum to minimum illumination)
Residential Districts	0.20 lumen per square foot <u>2.0 footcandles</u>	16 feet	<u>15:1</u>
Commercial Business and Institutional Districts	0.20 lumen per square foot <u>5.0 footcandles</u>	16 feet	<u>15:1</u>
Industrial Districts	0.30 lumen per square foot <u>5.0 footcandles</u>	20 feet	<u>15:1</u>

*Measured from the ground to light source.





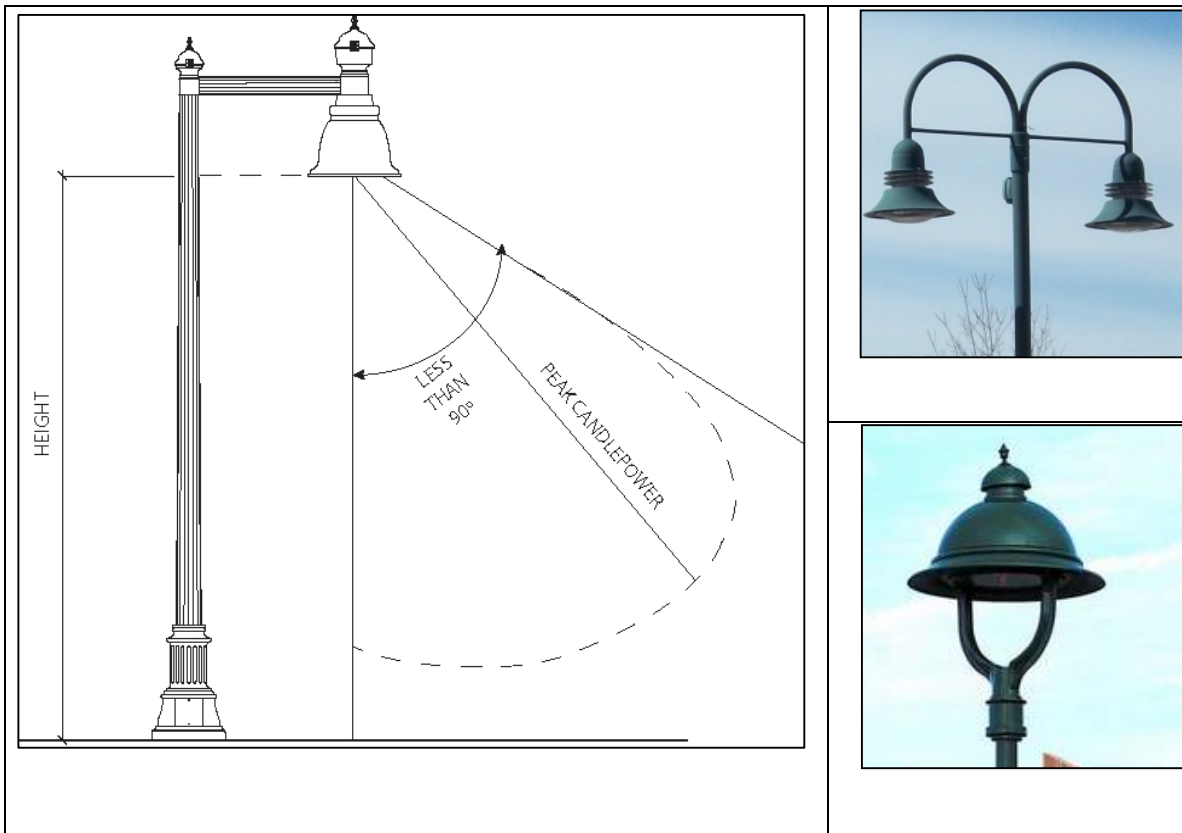
(b) **Luminaires with Cutoffs Less Than ~~85-90~~ Degrees.** ~~When a~~The luminaire ~~has~~shall have a total cutoff of light at an angle less than eight-five (~~85~~90) degrees and ~~is located so that the light source is completely shielded from the direct view of an observer five (5) feet above the ground any property line, then~~shall be shielded from abutting properties when located within twenty (20) feet of any property line. ~~The~~ maximum permitted illumination and the maximum permitted height of the luminaire shall meet the standards in ~~Exhibit VI-15~~Exhibit VI-15.

Exhibit VI-15: Standards for Luminaires with Cutoffs Less Than 85 Degrees

Standard	Maximum Permitted Illumination	Maximum Permitted Height of Light Source*
Residential District	0.50 lumen per square foot 1.00 lumen per square foot <u>two</u> <u>footcandles</u>	20 feet 25 feet
Commercial <u>Business,</u> <u>Institutional</u> and Industrial District	3.00 lumens per square foot <u>5</u> <u>footcandles</u>	35 feet

* Measured from the ground to light source.

Examples of Luminaires with Cutoffs Less than 90 Degrees



- (c) **Motion Sensor Lighting.** Sensor activated lighting may be unshielded provided it is located in such a manner as to prevent direct glare and lighting into properties of others or into a public right-of-way, and provided the light is set to only go on when activated and to go off within five minutes after activation has ceased, and the light shall not be triggered by activity off the property.
- (d) **~~Floodlamps and Area Lights~~Floodlights.** All ~~floodlamps and area lights~~floodlights, except for sign lighting and architectural or landscape accent lighting angled away from property lines, shall be aimed downward at least forty-five (45) degrees and no portion of the light bulb shall extend below the bottom edge of an external shield~~shall have top visors to prevent skyglow.~~ The light source of floodlamps and area lights shall not be visible from adjacent properties or the public right-of-way. Flood lights in residential districts shall be triggered by motion sensors complying with the above standards.
- (e) **Canopy Lights Service Stations.** The average lighting level for new and existing service stations shall be no greater than ~~three (3) lumens per square foot~~ten (10) footcandles with a uniformity ratio of 15:1 (maximum to minimum) under the canopy. All lighting shall be recessed to ensure that no light source is visible from, or causes glare on, public rights-of-way or adjacent property.

(f) Outdoor Sports Field /Outdoor Performance Area Lighting

1. Because of their unique requirements for nighttime visibility and their limited hours of operation, ball fields, playing fields and tennis courts are exempted from the exterior lighting standards of paragraphs (a) and (b) of this section. These outdoor recreational uses shall meet all other requirements of this Lighting Code.
2. The outdoor recreational uses specified above shall not exceed a maximum permitted post height of eighty (80) feet.
3. The outdoor recreational uses specified above may exceed a cutoff angle of eighty-five (85) degrees, provided that the luminaire is shield to prevent light and glare spillover to adjacent right-of-way or residential property. The maximum permitted illumination at the property line shall not exceed two (2) ~~lumens-per-square foot~~footcandles.

(g) Lighting of Outdoor Display Areas

1. Outdoor display areas shall have a maximum ~~average point of illuminance~~ of twenty (20) ~~lumens-per-square foot~~footcandles with a uniformity ratio of 15:1 (maximum to minimum).
2. All light fixtures shall meet the Illuminating Engineering Society of North America (IESNA) definition of Cutoff Fixtures. Forward throw fixtures (type IV light distribution, as defined by the IESNA) are required within twenty-five (25) feet of any public street right-of way.

35.2-65.4 Additional Regulations

Notwithstanding any other provision of this section to the contrary:

- (a) No flickering or flashing lights shall be permitted.
- (b) Light sources or luminaires shall not be located within a required buffer except along pedestrian walkways.
- (c) Measurement
 1. Metering equipment. Lighting levels shall be measured in ~~lumens-per-square foot with a direct reading, portable light meter~~footcandles. ~~The meter shall have a color and cosine corrected sensor with multiple scales and shall read within an accuracy of plus or minus five (5) percent. It shall have been tested, calibrated and certified by an independent commercial photometric laboratory or the manufacturer within one (1) year of the date of its use.~~
 2. Method of measurement. The meter sensor shall at ground level for horizontal footcandles and five (5) feet above ground for vertical footcandles. ~~be mounted not more than six (6) inches above ground level in a horizontal position.~~ Readings shall

be taken by qualified personnel only after the cell has been exposed long enough to provide a constant reading.

3. Responsibility for Measurement at the Time of Installation. Prior to issuance of a certificate of occupancy, the person installing lighting fixtures shall document compliance with the requirements of the lighting requirements in this section 35.2-65 et seq.

35.2-65.5 Lighting Plan Required

As part of the site plan approval process, the applicant shall submit a lighting plan that includes the location of outdoor lighting and a key to the proposed outdoor lighting that provides the following information:

- (a) Type and number of luminaire equipment (fixtures), including the "cut off characteristics", indicating manufacturer and model number(s).
- (b) Lamp source type (bulb type, i.e. high pressure sodium), lumen output, and wattage. Mounting height with distance noted to the nearest property line for each luminaire.
- (c) Types of timing devices used to control the hours set for illumination, as well as the proposed hours when each fixture will be operated.
- (d) Total Lumens for each fixture, and total square footage of areas to be illuminated.
- (e) Lighting manufacturer-supplied specifications ("cut sheets") that include photographs of the fixtures, indicating the certified "cut off characteristics" of the fixture.
- (f) ~~Illuminance distribution, plotting the maximum light levels in lumens per square foot on the ground under each fixture and at~~ Lighting design shall be submitted showing an average maintained point-by-point analysis of the area and showing the footcandles at the property lines for light trespass analysis.
- (g) A statement from a lighting professional that the resulting lighting, including all on-site sources of lighting complies with the standards of this Zoning Ordinance.
- (h) A statement that no substitutions, additions, or changes may be made without prior approval by the Zoning Administrator.